

# **Mojave National Preserve**

**National Park Service  
U.S. Department of the Interior**



## **Employee Housing at Kessler Springs Environmental Assessment**

**Mojave National Preserve  
San Bernardino County, California**

**June 9, 2005**

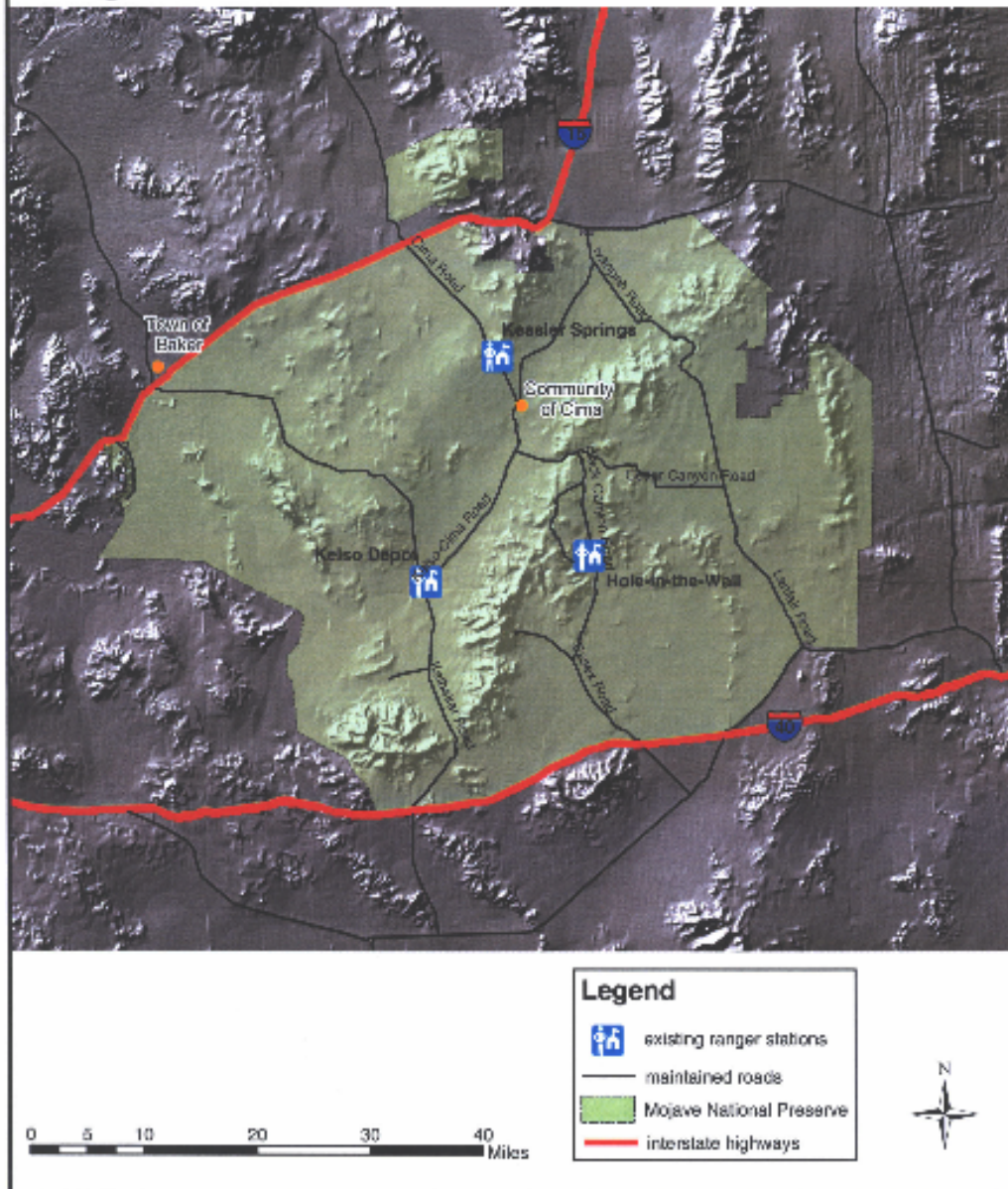
## **Introduction**

### **1.1. Purpose of Action**

The National Park Service is considering construction of permanent employee housing in Mojave National Preserve to accommodate the staffing needs of the Park and compensate for a housing shortage in the adjacent communities. As the Park increases its field operations, it must also provide housing opportunities for the staff. At present, there is no available housing for rent or sale in Baker, Cima, Nipton, or Essex. Other opportunities are extremely limited and are located more than a one-hour commute away from any duty station in Mojave National Preserve.



## Figure 1: Overview



## 1.2. Need for Action

If the housing shortage in and around Mojave National Preserve is not addressed, the NPS will not be able to effectively recruit or retain field staff for its operations. Mojave currently has a law enforcement field staff of four full-time permanent employees covering 1.6 million acres. As the law enforcement operation expands, employee housing needs will increase accordingly. The Kelso Depot is scheduled to become operational as the Park's main visitor information center by 2006. It will require enough staff to man the information desk and maintain the facilities for the Depot to remain open to the public seven days a week. Maintenance staff is also needed to keep six other separate utility systems operational throughout the Park. Another issue is the need to better secure the Park's more prominent cultural resources. Without a constant Park presence at some of its historic sites, the cultural resources in Mojave are at risk of vandalism and theft. For all of these reasons, the NPS is considering the construction of permanent employee housing at Kessler Springs Ranch.

The existing trailer house at Kessler Springs that is currently used as a ranger residence does not meet park housing standards and the other trailer house on the site is uninhabitable. Both trailers have been identified for replacement in FY06 under the NPS Housing Initiative's Trailer Replacement Program. Under this program, the NPS constructs new residences and removes trailers from operation. Additionally, a trailer house located four miles southwest of Kessler Springs near the community of Cima has been identified for future replacement. The existing utility systems at the Kessler Springs Ranch headquarters do not meet United States Public Health Service (USPHS) standards. The water system consists of a shallow well, pipelines, two water tanks, and a pressure pump. The well water is susceptible to fecal coliform contamination. It is treated with hypochlorite and used for livestock watering and domestic purposes. Bottled drinking water is provided to residents by the Park.

## 1.3. General Description of Kessler Springs

Kessler Springs is located in the north central portion of Mojave National Preserve in Shadow Valley between Cima Dome and Kessler Peak. The site is situated approximately 12 miles south of Interstate 15 and four miles north of the small community of Cima (Figure 1), and may be accessed from Cima Road. The ranch is situated within a dense Joshua tree forest at an elevation of about 4,800 feet. The presence of perennial springs in this arid landscape has made Kessler Springs a locus of human use for millennia. Prehistoric use of the vicinity by Native Americans is well-documented and represented by several previously recorded archaeological sites in the area. The ranching use of the site dates to the 1880's or earlier (Livingston 2002). The former Rock Springs Land and Cattle Company controlled ranching across the entire East Mojave from 1894 to 1927. Upon its collapse on the eve of the Great Depression, the Rock Springs land holdings and grazing leases were split up and sold as smaller ranching operations – the Kessler Springs, OX, and Valley View ranches in California and the Walking Box Ranch in adjacent Nevada. The Kessler Spring Ranch has been proposed as a National Historic District whose

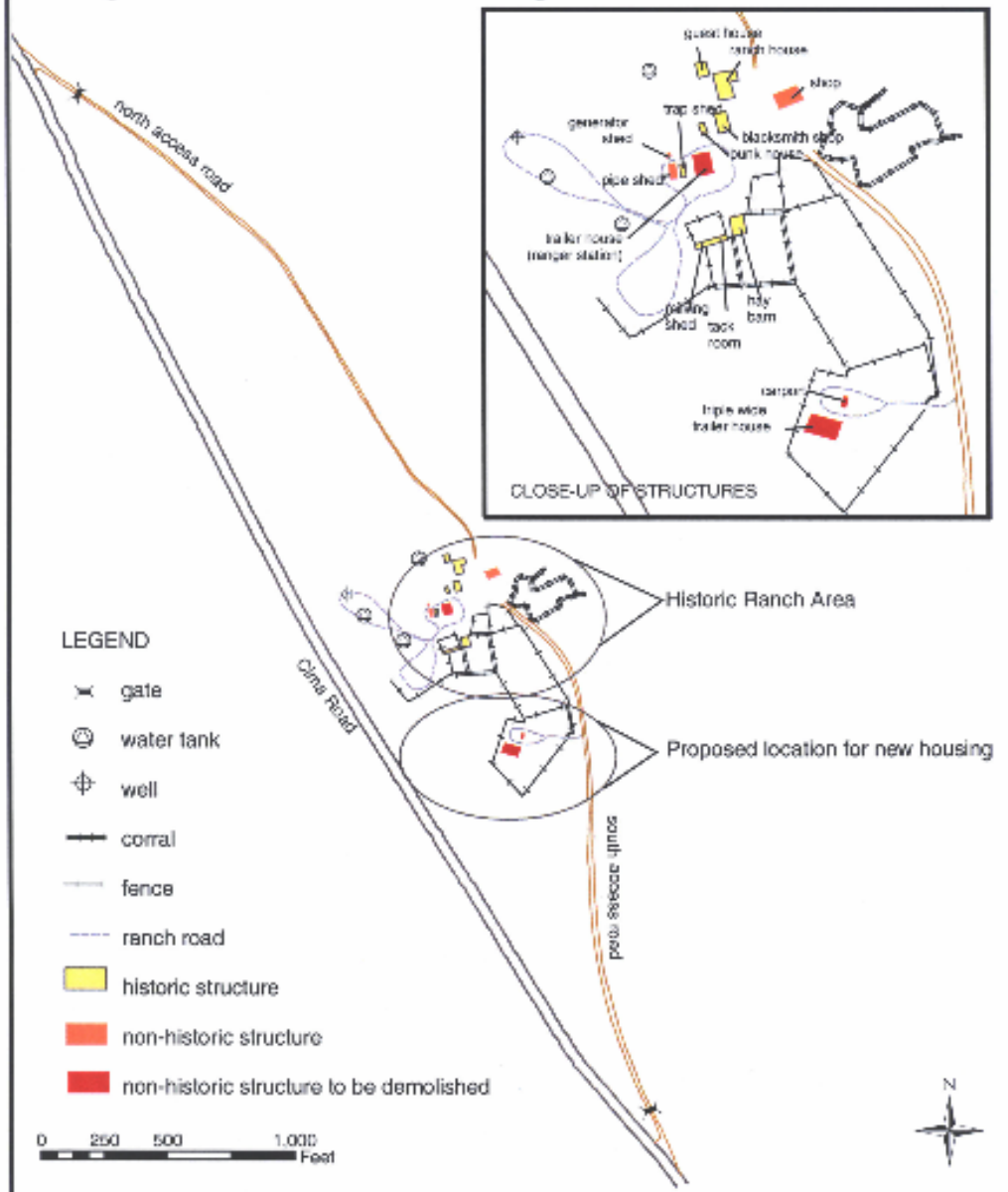
period of significance dates from 1894 to 1947, or roughly the time during which the Rock Springs operation was in effect and then the smaller ranches were getting started. The historic district would include the Kessler Springs Ranch headquarters and much of its infrastructure as contributing elements occupying 32 acres. It includes eight buildings considered “contributing” to historic significance (hereafter referred to as “historic”) and six buildings considered “non-contributing” (hereafter referred to as “non-historic”), plus 22 other site features including an extensive corral system. The entire infrastructure is contained within the footprint of the historic ranch site (Figure 2).

Through a partnership with the National Parks Foundation, the Kessler Springs Ranch was acquired in 2001, and the grazing allotment associated with this ranching operation has been retired. The site is currently being used for employee housing and administrative purposes. It houses the Park’s year-round stock operations and is the base camp for the annual roundup of feral burros.

In its Housing Management Plan (2004), Mojave National Preserve identified seven required occupancy positions. During the planning process the Kessler Springs Ranch headquarters was selected as one location at which multiple employee residences could be consolidated. Kessler is a previously developed site that has easy access from Cima Road and is in the vicinity of I-15, Kelso-Cima Road, and Morning Star Mine Road. Kessler Springs is also part of the fabric of historic ranching in the Mojave Desert. Housing and the associated permanent presence of NPS employees onsite has the added benefit of increasing security to the historically significant buildings and other infrastructure at this location.



## Figure 2: Existing Features



## 1.4. Issues

Mojave National Preserve staff has identified the following issues with regard to employee housing at Kessler Springs:

- location and design of infrastructure including employee residences, parking, and utility systems;
- maintenance operations;
- administrative facilities;
- circulation and access; and
- identification and management of cultural and natural resources.

These issues elaborate on the management needs identified for Mojave National Preserve in its General Management Plan (GMP).

## 2. Alternatives

### 2.1. No Action (Maintaining the Status Quo)

The No Action alternative describes the consequences of taking no management decision.

Under the No Action alternative, the two existing trailers at Kessler Springs and Cima that are currently inhabited by park employees will be used, maintained and repaired as park housing for the duration of their useful life. Once these trailers have outlived their usefulness, they will be removed from Mojave's employee housing program. There are no plans to replace the trailers under No Action. The uninhabitable, non-historic structures (e.g., Grandma's House) will remain on site without periodic maintenance or repair.

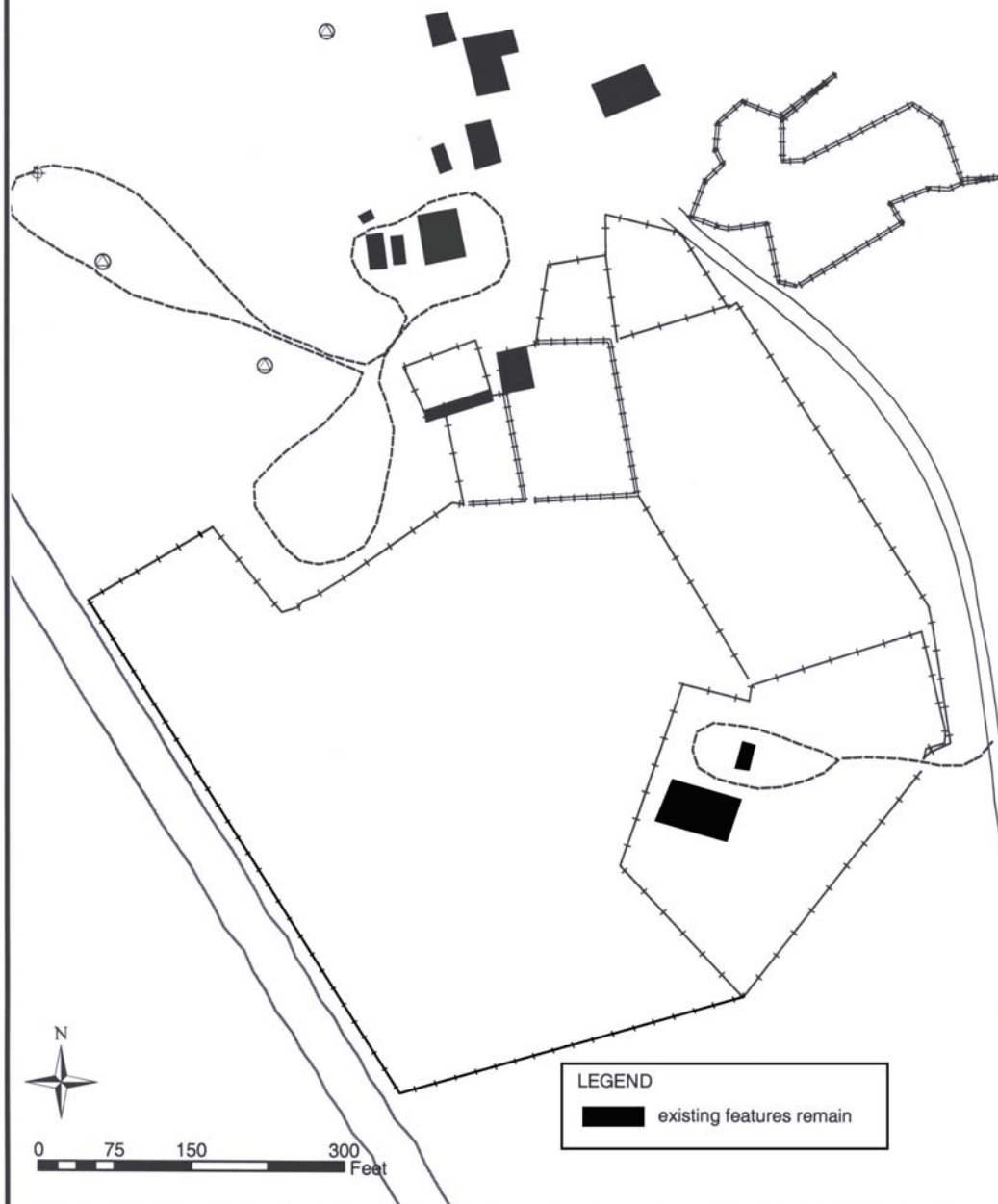
Fire, law enforcement, medical, and utility emergencies will continue to be handled by personnel stationed in other areas of the Park.

The historic ranch site at Kessler Springs will remain intact pending future decisions about interpretive and administrative use of the site. Periodic maintenance of the structures will be performed as needed to insure their structural stability.

The corrals and associated buildings at Kessler Springs will continue to house Mojave's stock operation and will also serve as the base of operations for annual feral burro round-ups.



## Figure 3: No Action



## 2.2. Proposed Action: Trailer Replacement

The National Park Service proposes to remove two existing trailer houses at Kessler Springs and one trailer house at the Maintenance Compound in Baker. These housing units will be replaced with permanent structures – one single-family dwelling and one duplex unit – at Kessler Springs Ranch.

Trailer removal includes the removal or termination of any associated utilities, as well. Underground utilities will be abandoned in place if it is determined that their location will not interfere with future uses of the site. All associated yard features, such as decks and carports, will be removed. The trailers will be sold as surplus government property and removed from Mojave National Preserve.

The site design for permanent employee residences accommodates three single-family residences to be constructed in fiscal year 2006. This will include one three-bedroom single-family dwelling and one duplex with two two-bedroom units. Figure 3 shows a generalized layout of the proposed new housing and utility areas occupying approximately five acres, but exact placement of buildings and utility systems will be determined during the design phase after completion of this environmental analysis. The entire footprint of existing disturbance totals 32 acres. Employee housing will occupy a significantly smaller subsection of this footprint.

This alternative provides for a continued residential presence of park employees at Kessler Springs, which has the additional benefit of providing increased security to the site.

### Buildings

New residences and associated utilities will be constructed entirely within the footprint of existing disturbance at Kessler Springs. Measures will be taken to avoid impacts to the historic scene of the ranch. The Proposed Action places new construction where a triple-wide trailer house and carport are currently located. New construction includes one single-family dwelling and one duplex with two two-bedroom units. Garages will be constructed for all three units. All new buildings will conform to the NPS Housing Program floor plans and specifications. They will also conform to site-specific standards that best reflect the history and climate of Kessler Springs. For this location, all structures will have pitched roofs and a subdued stucco exterior painted to blend with the surrounding landscape. This exterior will match the exterior design of the historic ranch house at Kessler Springs and will be suitable to the four-season climate at this elevation.

### Landscaping

When situating the new houses, care will be taken to minimize loss of existing Joshua trees and mature landscaping trees. Each housing unit will include a 30-foot buffer around the outside of the house that will be available for use as a yard for the benefit of the residents, including construction of patios, flower beds, gardens, fences, and shade arbors subject to NPS policy regarding ground disturbance and propagation of non-native plants. Beyond the yard areas, the

NPS will landscape the housing area with a focus on low maintenance native plants and minimal water use. No irrigation system will be required.

All efforts will be made to keep the existing vegetation intact. Because the new construction will be sited where trailers are currently located, the need to relocate Joshua trees or other native vegetation is minimal. If native vegetation must be removed, it will be relocated within Kessler Springs Ranch.

### Access

The existing south access road for the Kessler Springs area will be used to access the new housing area and driveways will be constructed to provide access to the residences. The construction of new driveways will be mitigated 1:1 through the rehabilitation of other unpaved, non-historic ranch roads on the former Kessler Springs Ranch.

### Utility Systems

Under the Proposed Action, the NPS will install new utility systems that comply with all applicable State of California health and safety codes and provide capacity to support all of the proposed housing for the Kessler Springs site. The main utility corridor will extend between Cima Road and the housing area, with primary access from Cima Road. All above-ground utility equipment will be enclosed by a perimeter fence and a block or adobe wall may be constructed to reduce noise and the visual impact of the required utilities. Equipment stationed in this area may include water tanks, propane tanks, propane generators, solar panels, battery storage systems, and inverters as determined necessary in the final siting plan. The fenced perimeter will also isolate a small building that will house equipment requiring protection from the elements. Efforts will be made to concentrate utilities in this designated area which will be adjacent to the residential structures, as needed.

Electrical power will be generated on site. At other locations within Mojave, the NPS has installed photovoltaic systems (arrays, battery banks, inverters, and transmission lines) for administrative purposes, with back-up propane generators. A similar system will be installed for the Kessler Springs housing area.

A new well was constructed on site in 2004 approximately 800 feet northwest and upslope from the proposed new housing area. Water from this well has adequate flow (15-35 gpm) to support the proposed housing and can meet USPHS standards with minimal treatment. Aboveground utilities include storage tanks, pressure tanks and/or pumps, a chlorination system and various underground distribution lines to serve both the new housing area as well as the historic ranch area. A water storage pressure tank will be installed in a new or retrofitted building on the west side of the historic ranch area. Other above ground components of the water system will be located in the designated utility area west of the new housing area.

A new septic system will be installed, consisting of septic tanks with gray water infiltration fields located in close proximity to the new housing area in an area presently used as a horse arena. The system will include a 3,000 gallon tank and at least 300 lineal feet of leach field. The leach

field will be installed on previously disturbed land. The septic system is expected to last at least 20 years.

An existing phone line runs along Cima Road and will be extended below ground into the new housing area to provide telephone service for residents.

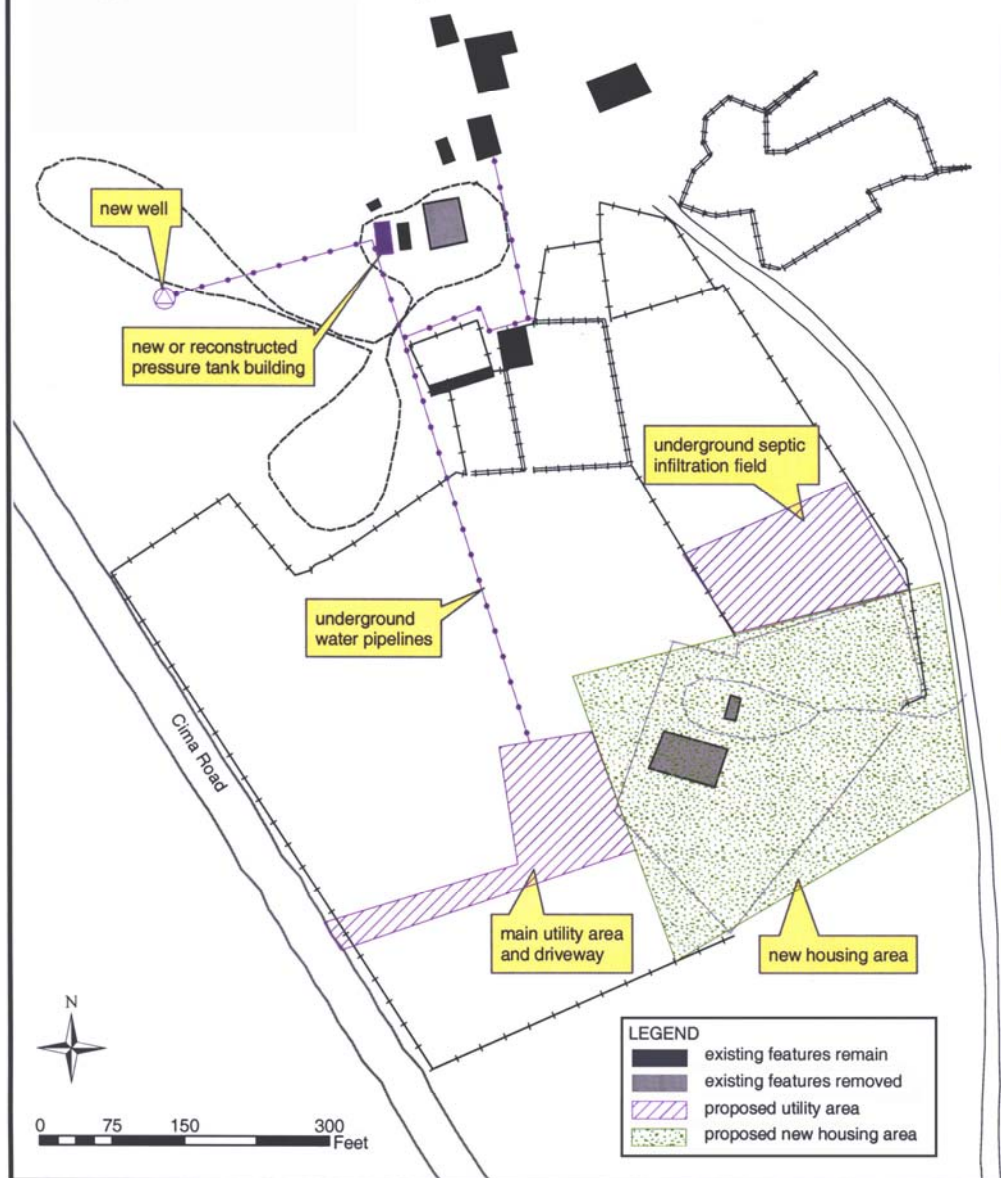
Individual houses will include roof mounted satellite receivers as needed to provide internet, television, and communication services.

### Total Size

The Proposed Action will result in approximately 2.5 total acres of disturbance. This total includes approximately 2,000 linear feet and 0.6 acres of disturbance limited only to the construction period. For example, installation of below ground utilities where vegetation is disturbed but can grow back after construction is complete. The total also includes approximately 1.4 acres of long-term disturbance by occupation where the footprints of buildings, driveways, and other surface infrastructure will continue to persist.



## Figure 4: Proposed Action



## 2.3. Alternatives Considered But Rejected

### 2.3.1. Provide housing at the Community of Cima

This site was considered but rejected for three reasons. Most of the land in Cima is privately owned and not available for sale. The only parcel owned by the NPS is approximately four acres and over one mile from Cima Road via a dirt road maintained by Southern California Edison. A second reason is the lack of water at Cima. Cima residents rely on water either piped or trucked in from off-site. The well at Kessler Springs also supplies water to the NPS trailer at Cima. Finally, if employee housing at Kessler Spring is removed, this will also remove a permanent employee presence from the site. The historic resources, the livestock operation, and NPS equipment will be left vulnerable to vandalism and theft.

### 2.3.2. Provide housing at some other location in or near the northeast portion of Mojave

This alternative was similarly rejected because of the lack of NPS presence at Kessler Springs. In addition, other locations in Mojave do not have adequate available water compared to Kessler Springs. While there are other small ranch and mine sites with wells within this portion of Mojave, these sites would not be able to support more than one residence. There are two communities outside of Mojave's boundaries to consider: Mountain Pass and Nipton. Both were found to lack the air and/or water quality needed to meet NPS standards. There are no private properties available for sale or rent in either community that could provide alternate non-NPS housing for park employees.

### 2.3.3 Obtain rental housing in adjacent or nearby communities

The Park has tried unsuccessfully to obtain rental housing in Baker, Cima, and Essex. Mojave does rent one trailer at Kelso from Union Pacific Railroad but other trailers at Kelso are reserved for railroad employees. Other opportunities are extremely limited and are located more than a one-hour commute away from any duty station in Mojave National Preserve.

## 2.4. Environmentally Preferred Alternative

As defined in NPS Director's Order 12 and Reference Manual 12, the Environmentally Preferred Alternative is that which causes the least damage to the biological and physical environment. Simply put, it is the alternative which best protects, preserves, and enhances historic, cultural, and natural resources. Because there would not be a permanent NPS presence on site, the No Action alternative would leave the historic and administrative resources unsecured and vulnerable to theft and vandalism. In addition to providing housing for required occupancy positions, the retention of a residential NPS presence on the site will offer much needed security to the site and its associated historic and cultural resources. NPS operations

will also be protected. This, therefore, makes the Preferred Alternative the environmentally preferred alternative, as well.

### **3. Environmental Analysis (includes affected environment and impacts)**

#### **3.1. Impact Analysis Parameters**

- Direct effect: An impact that occurs as a result of the Proposed Action or alternative in the same place and at the same time as the action (NPS 2001b).
- Indirect effect: Reasonably foreseeable impacts that occur removed in time or space from the Proposed Action. These are “downstream” impacts, future impacts, or the impacts of reasonably expected connected actions (NPS 2001b).
- Duration: This is an estimate of the period of time that a resource will be impacted. Duration is determined to be either short-term or long-term.
  - Short-term: Impact is not likely to be observed beyond five (5) growing seasons.
  - Long-term: Impact is likely to be observed beyond five (5) growing seasons.
- Magnitude: This is an estimate of the intensity of the impact that a resource will be subjected to. Magnitude is determined to be negligible, minor, moderate, or major.
  - Negligible: Impact is barely discernable.
  - Minor: Impact is barely measurable and is generally localized.
  - Moderate: Impact is measurable and may be localized or regional in scope.
  - Major: Impact is obviously measurable and is generally regional in scope.
- Direction: This is a value assigned based on the purposes for which Mojave was established. Direction can either be positive or negative.
  - Positive: Impact or change that promotes the long-term preservation of natural resources, ecological processes, and/or cultural resources.
  - Negative: Impact or change that is adverse to the long-term preservation of natural resources, ecological processes, and/or cultural resources.

#### **3.2 Impact Topics**

As per Director’s Order/Reference Manual #12: Environmental Compliance, this impact analysis is focused on those resources that have the potential for direct or indirect impact from the alternatives described above. Impacts will, for the most part, be limited to the immediate vicinity of the Kessler Springs Ranch headquarters and virtually all of the area has been previously disturbed by ranching operations at the site.

Geology, Paleontology, Geomorphology, Soils: National Park Service management policies direct that all resources are protected in units of the National Park System and effects on those resources must be considered when selecting and implementing management actions. The development proposed is quite small and located within a disturbed area with a long history of use for residential purposes. Therefore, no measurable direct or indirect effects are anticipated to geology, paleontology, geomorphology, or soils, thus these topics are not further analyzed.

Water Resources: Surface waters are rare in desert landscapes, yet are critical for maintaining wildlife and accommodating human use. Groundwater resources are critical to the maintenance of surface waters and provide much of the water used for human consumption. Wetlands and floodplains are also critical water-related resources and there are specific legal requirements for their protection (EO11990 and EO11988). As the new water and sewer systems have the potential to affect both quality and quantity of groundwater resources, impacts to water resources are further analyzed.

Air Resources: Both National Park Service policy (NPS 2001c) as well as the Clean Air Act direct the protection of clean air. Proposed utility systems are emission-less solar and propane power. As air quality impacts are limited to the generation of dust during the short period of construction activities, impacts to air quality are not further analyzed.

Natural Quiet: National Park Service policy (NPS 2001c) directs that natural soundscapes will be preserved in national parks. Proposed utility systems are powered by a noiseless solar electric system with a quiet propane-powered generator for back-up. Demolition and construction noise will be discernable from ambient sound, but will be localized and of short duration. Therefore, impacts to natural sound are not further analyzed.

Vegetation: Because construction of the new buildings and utility systems will directly impact vegetation and long-term residential use has the potential to indirectly impact vegetation, impacts to vegetation are further analyzed.

Wildlife: Because construction of the new buildings and utility systems will directly impact wildlife habitat and can cause displacement of small burrowing animals, impacts to wildlife are further analyzed.

Threatened and Endangered Species: National Park Service Policy (NPS 2001c) as well as the Endangered Species Act direct parks to consider the effects of their management decisions on threatened and endangered species. Kessler Springs is located on the edge of designated critical habitat for desert tortoise (*Gopherus agassizii*). Therefore, impacts to threatened and endangered species are further analyzed.

Cultural Resources – Prehistoric, historic, cultural landscapes, and ethnographic resources: National Park Service Policy as well as the National Historic Preservation Act direct that parks consider the effects of their management decisions on cultural resources. The proposed construction has the potential to affect cultural resources, particularly

undocumented below ground archaeological resources. Therefore, impacts to cultural resources are further analyzed.

Visitor Use: National Park Service policy directs that parks consider the effects of their management decisions on visitor use. As the Kessler Springs site is currently not open to the public and the construction of new housing would not change that status, impacts to visitor use are not further analyzed.

Wilderness: National Park Service policy as well as The Wilderness Act directs that parks consider the effects of their management decisions on designated wilderness. There are almost 700,000 acres of designated wilderness in Mojave National Preserve, but Kessler Springs is not in or adjacent to Wilderness. Therefore, impacts to wilderness are not further analyzed.

Socio-economic: While the demolition and construction will provide short-term employment for some people and limited revenue for some businesses, those affects are so negligible that socio-economic impacts are not further analyzed.

Park Operations: As provision of housing for required occupancy positions is fundamental to carrying out park operations, impacts to park operations are analyzed.

Impairment: The mission of the National Park Service as defined in the Organic Act of 1916 (16 USC 1) and reaffirmed by the General Authorities Act, as amended (16 USC 1a-1), specifically requires that the NPS leave park resources and values unimpaired, unless a particular law directly or specifically provides otherwise. This prohibition against impairment must, therefore, be addressed in any discussion regarding potential impacts to park resources. All alternatives are assessed for potential to significantly damage or impair the resources and values of Mojave National Preserve.

Cumulative Impacts: There are no planned or on-going activities that would impact the same resources in the same area. The No Action alternative excludes the opportunity to introduce invasive or non-native plant materials that would otherwise be associated with a construction project. For the Proposed Action, during the contracting phase bid specifications will be required to include a requirement that all equipment brought to the construction site be clean and free of debris, including plant materials. For either alternative, there are no identified cumulative effects.

### 3.3 Impact Analysis by Topic

#### 3.3.1 Water resources

The spring at Kessler Springs is a small (less than 1000 square feet) perennial seep that forms a shallow pool a few inches deep and a few feet wide. The spring is fed by groundwater and the direction of flow is from the west. The geographic extent of the catchment area is unknown as is the residence time of the water, although the spring demonstrates relatively rapid recharge following precipitation events. The shallow wells

and abundance of cottonwoods (a phreatophyte species) in and around the historic ranch area attest to the shallow water table.

The spring at Kessler Springs has long been used to support human life in the arid desert. The groundwater feeding the spring has been intentionally altered by humans since at least the 1880s when the site was first homesteaded. Since that time there has been continual use of the water via several wells that supported household use for up to three households plus a bunk house and a guest house when the ranch was in operation. The wells also supported a large garden and several fruit trees around the old ranch house. The well water was piped to several troughs in the corral area and was piped for up to 20 miles (Livingston 2002) to provide water for livestock.

Neither the No Action alternative nor the Proposed Action alternative would result in any direct impacts to the spring itself, as all activities are located at least 1000 feet away. However, there is potential for indirect impacts to the groundwater that feeds the spring. The groundwater system at Kessler Springs supports the Kessler Springs Ranch site and one trailer housing unit at nearby Cima. The Cima trailer currently provides employee housing and will continue to do so regardless of which alternative is ultimately selected.

Under the No Action alternative, the existing trailers would be removed and no new residences would be built so the household and garden use of water would cease. The limited livestock use would continue. So there would be substantially less pumping of groundwater than presently exists. This would result in negligible, indirect positive impacts to groundwater resources.

The Proposed Action would continue indirect impacts to the groundwater that feeds the spring. The Proposed Action would continue the use of well water to support up to five households, a very small livestock operation, and small gardens or yards. Modern, water-efficient appliances and plumbing for the five new households would likely make the household use about equivalent to the current use by three old trailers or the historic use by three households. The NPS livestock operation (four horses for Park operations, plus the annual burro roundup) is greatly reduced from the number of animals that were previously supported by the wells when the ranch was in operation, and so is expected to use less water than was used historically for this purpose. The water use to support the yards and gardens of the five households is expected to be about equivalent to the large garden that was irrigated historically. Overall, the Proposed Action would use less groundwater than was previously used by the ranching operation. The water system that has been proposed for Kessler Springs will support an average daily demand of 1,660 gallons per day (10 gallons/minute).

The septic system would have no impact to water resources as it would be an engineered system composed of septic tanks and gray water infiltration, with the gray water infiltration field located 330 feet uphill from the wash and 1050 feet downhill from the spring, and 700 feet downhill from the well.

In conclusion, the No Action would result in negligible, indirect positive impacts to groundwater resources due to the reduction in groundwater use. The Proposed Action would result in minor, negative, indirect impacts to water resources due to the continuation of groundwater use.

### 3.3.2 Vegetation

The project area is surrounded by dense Joshua tree woodland along the eastern edge of the Cima Dome, considered by some to be the largest and densest Joshua tree woodland in the world. The Joshua tree woodland community is overwhelmingly dominated by Joshua tree (*Yucca brevifolia* var. *jaegeriana*) and blackbush (*Coleogyne ramosissima*). Common associates include staghorn cholla (*Opuntia acanthocarpa* var. *coloradensis*), silver cholla (*Opuntia echinocarpa*), Mojave prickly-pear (*Opuntia erinacea* var. *erinacea*), Spanish bayonet (*Yucca baccata*), desert rue (*Thamnosma montana*), rubber rabbitbrush (*Chrysothamnus nauseosus* var. *mohavensis*), and goldenbush (*Ericameria linearifolia*). Various desert annuals appear in the intershrub spaces.

The area proposed for the new housing is previously disturbed by the existing triple-wide and carport. Herbaceous plants on the site include a fairly continuous cover of non-native species, primarily red brome (*Bromus madritensis* ssp. *rubens*) and filaree (*Erodium cicutarium*). The area proposed for the new utility area was heavily used by livestock. The proposed location for the gray water infiltration field is in a barren riding arena. Any vegetation removal deemed necessary will be concentrated on non-native and invasive plant species. All native vegetation that must be removed will be transplanted elsewhere within the Kessler Springs Ranch site.

There are no known rare or protected plant species that occur in this area of Mojave and the long-term human occupation and concentration of livestock at the Kessler Springs site make it highly unlikely for such species to have persisted at this location. Indeed, the high levels of non-native species found in the vicinity of the buildings are indicative of a disturbed landscape with little potential to support rare or specialized species.

The No Action alternative will result in little to no impacts to vegetation. The area surrounding the existing three trailers and their utility systems is mostly bare ground or weedy or landscape species indicative of a disturbed site. The absence of employees in residence is not likely to have any impact on vegetation.

The Proposed Action would result in approximately 2.5 total acres of disturbance. This total includes approximately 2000 linear feet and 0.6 acres of disturbance limited only to the construction period. For example, installation of below ground utilities where vegetation is disturbed but can grow back after construction is complete. The total also includes approximately 1.4 acres of long-term disturbance by occupation where the footprints of buildings, driveways, and other surface infrastructure would continue to displace vegetation. The species likely to be impacted in either case are mostly non-natives or are native species commonly found in Joshua tree woodland, including the potential for removal of several Joshua trees.

The areas disturbed for new construction would likely be re-colonized by non-native red brome and filaree. Both species are weedy annuals with abundant seed sources throughout the Kessler Springs area. As these species are already widespread and abundant in the Kessler Springs vicinity, these new populations are unlikely to cause additional ecological harm. Eventually, opportunistic native species would likely colonize those construction sites. The occupation sites would obviously displace native plant habitat with the footprint of buildings or other surface infrastructure. As surface disturbance by foot traffic around buildings and vehicles along roadways will be on-going, these sites would continue to be heavily infested with red brome and filaree as there are no practical weed management methods treatments for these two species. Landscaping plans for the common areas of the housing area would focus on the establishment of low maintenance native vegetation. Yard use by residents could introduce other non-native garden and flowering plants, although NPS policy prohibits the introduction of non-native species that are likely to become naturalized. As most garden and landscape varieties cannot survive the harsh desert climate without constant human attention, it is highly unlikely that any yard materials would become naturalized weeds. A possible indirect impact is the potential for government vehicles parked at the Kessler Springs housing area to transport weed seed from Kessler Springs to other areas of Mojave that are not currently infested. To mitigate this concern, vehicles will be restricted to parking pads and driveways and both areas will be kept weed free using mechanical methods.

In conclusion, implementation of the No Action alternative would result in no impacts. Implementation of the Proposed Action would likely result in direct minor, long-term, negative impacts to vegetation as a result of disturbance that would continue an on-going problem with non-native annual weeds.

### 3.3.3 Wildlife

The Kessler Springs area supports abundant rodent and rabbit populations as well as many passerine bird species. Rodents, including native and non-native species, occupy every building on the site as well as the natural habitats in the surrounding Joshua tree woodland. Rabbits, including both cottontails and jackrabbits, are abundant throughout the developed area as well as in the surrounding Joshua tree woodland and are frequently seen feeding on the abundance of native and non-native grasses growing around the buildings and in the wash area. A variety of passerine birds utilize the cottonwood trees and, to a lesser extent, the landscape trees around the developed area. Raptors, including great horned owls and red tail hawks, frequently roost in the trees and feed on the rodent and rabbit populations. Other birds occupy the surrounding Joshua tree woodland. Lizards are seen around the trailers, but there are almost no snakes in the developed area. There are occasionally deer, coyotes, and bobcats seen in the vicinity of Kessler Springs, particularly around the spring site, but these larger wildlife species are rarely seen in the area around the houses. There are no burros, except during the annual round-up operation, at Kessler Springs due to the perimeter fencing.

The Desert Tortoise Recovery Plan shows the boundary of the Ivanpah Desert Wildlife Management Area (DWMA) runs north-south through the Kessler Springs developed area. The lands to the west of Kessler Springs, namely Cima Dome, are within the Ivanpah DWMA and are known to support desert tortoise. The lands to the east are too mountainous to support desert tortoise. In two years of occupancy by park staff, including a biologist, no tortoises or burrows have been observed near Kessler Springs. The proposed construction area was surveyed for tortoise in April 2005 and no signs of tortoise were found.

The No Action alternative would likely result in short-term impacts to rodent populations due to the removal of infested trailers. Most of the displaced rodents would find new habitat in other surrounding buildings and the native species might survive in the Joshua tree woodland. The area surrounding the existing three trailers and their utility systems is mostly bare ground or weedy or landscape species indicative of a disturbed site which don't have much habitat value for native wildlife, except for lizards and occasionally passerine birds that use the landscape trees immediately adjacent to the trailers. Removal of these structures or trees would result in short-term impacts to individual animals, but would not significantly impact any native wildlife populations. Likewise, the absence of employees in residence is not likely to have any impact on wildlife.

The Proposed Action would result in approximately 2.5 total acres of disturbance. This total includes approximately 2000 linear feet and 0.6 acres of disturbance limited only to the construction period. For example, installation of below ground utilities where vegetation is disturbed but can grow back after construction is complete and provide some habitat for wildlife. The total also includes approximately 1.4 acres of long-term disturbance by occupation where the footprints of buildings, driveways, and other surface infrastructure would continue to displace vegetation and eliminate wildlife habitat.

In conclusion, implementation of the No Action alternative would result in direct negligible, short-term, negative impacts to wildlife as a result of displacement of a few individual animals that occupy the area around the trailers to be removed. Implementation of the Proposed Action would result in direct, negligible, short-term negative impacts to wildlife as a result of loss of low value habitat due to the new houses and utility systems.

#### 3.3.4 Cultural Resources

As a reliable water source in an arid desert, Kessler Springs has a long human history. The site is named in a Chemehuevi song cycle (Laird 1976), an oral tradition used to pass on critical information to successive generations, thus indicating its long-standing importance to American Indians. The surrounding area includes known temporary habitation sites and bedrock mortars, but none have been formally documented. There are no known archaeological sites in the areas identified for utility or housing construction.

Livingston (2002) has recently completed a historic survey of Kessler Springs. Following pre-historic and historic use by the Native Americans, the historic use of the site for

ranching purposes dates to the 1880's or earlier (Livingston 2002). It was first homesteaded by Daniel Kistler (c1880-1881) who raised cattle to sell to the mining camps. In 1894 it became part of the massive Rock Springs Land and Cattle Company, serving as a line camp for a ranching operation that reportedly ran 10,000 head of cattle on one million acres of open rangeland. The Rock Springs Land and Cattle Company is a proposed National Historic District with a period of significance of 1894-1952. In 1928 the Rock Springs Land and Cattle Company was divided and sold as three separate ranches, one of which was the 300,000-acre Kessler Springs Ranch. The property was managed as a family ranching operation in the post-Taylor Grazing Act era characterized by substantial federal subsidies and requirements. Kessler Springs Ranch belonged to several different families between 1928 and 2001 when it was acquired by the National Park Service.

The Kessler Springs Ranch site consists of eight buildings considered "contributing" to historic significance and six buildings considered "non-contributing" as well as 22 other site features including an extensive corral system. A few of the features date from the Rock Springs Land and Cattle Company era, most notably the east corrals, but most of the buildings were constructed or significantly altered in the 1930's when the ranch was operated by the Williams family. Notable buildings include the old ranch house, blacksmith shop, guest house, bunk house, trap shed, hay barn, milk cow barn, and tack shed. All of the historic buildings, four non-historic buildings, and all of the historic corrals are clustered in what is referred to as the "historic ranch site" which also includes cultural landscape elements.

The No Action alternative would not impact the historic integrity of the property as it does not address treatment and preservation of the historic resources at Kessler Springs Ranch.

The Proposed Action alternative would remove the existing trailers and build the new houses, main utility area, and septic infiltration field in an area removed from the historic ranch site, thus there would be no impact to historic resources. The bladder tank and some of the water pipelines from the new well would be in the historic ranch area. The pipelines through the historic ranch site would serve the corrals, thus continuing a historic use of the property for livestock holding. The bladder tank would be housed in a building that would be constructed to blend with the historic buildings and would be located in the footprint of the pipeshed which is a non-historic structure in poor repair. Also a vault toilet and a generator would be temporarily installed in the historic ranch area and would be sited to avoid impacts to historic resources and the cultural landscape. For all aspects of the projects, ground disturbance would be avoided and minimized by conducting a pre-construction reconnaissance survey of all construction sites and monitoring ground disturbing activities by a qualified archaeologist. In the event that archaeological resources are uncovered, the ground disturbance will halt and the State Historic Preservation Office will be consulted.

In conclusion, implementation of the Proposed Action would result in direct, minor, long-term positive impacts to historic resources by removing a non-historic structure from the

historic scene. The No Action alternative will not impact the historic resources of the site. The Proposed Action alternative also has the potential for direct impacts to undiscovered archaeological resources, although this risk will be avoided and minimized to the extent possible through reconnaissance and monitoring of ground disturbing activities.

### 3.3.5 Park Operations

The trailers to be removed are used for employee housing for one law enforcement ranger, one utility system operator, and one wrangler. As previously described, these positions are all required occupancy under Mojave's Housing Management Plan.

The No Action alternative would not remove the trailers but not build new houses. No housing only sufficient for one employee will remain at the site. The consequences of No Action include effectively removing the presence of three positions from the northeast portion of Mojave and possibly relocating them to Baker. This would result in much greater response times to emergency situations as well as increased travel costs for these employees to perform work in the eastern half of the park. It would also leave the NPS livestock unattended and vulnerable to theft or vandalism.

The Proposed Action would result in increased efficiencies by concentrating maintenance work into one housing area. Also the new utility systems would be much more efficient and less prone to breakdown than the present utility systems at the three trailers, many of which do not meet code. The new well would provide potable water and eliminate the need to provide bottled drinking water to residents, thus reducing workload and saving money. The new housing and utility systems would also improve employee morale, possibly increasing retention and thus increasing operational continuity and reducing costs associated with hiring and training new employees.

In conclusion, the No Action alternative would result in major, direct, long-term negative impacts to park operations by removing three maintenance and law enforcement presence from the northeast portion of Mojave. The Proposed Action alternative would result in major, direct, long-term, positive impacts to park operations by retaining the presence of maintenance and law enforcement personnel, improving utility systems, and improving employee retention and morale.

### 3.3.6. Summary of Impacts

Table 1. Impact matrix

	<b>No Action alternative</b>	<b>Proposed Action alternative</b>
Water Resources	negligible, long-term, indirect positive impacts to groundwater resources due to the reduction in groundwater use	minor, long-term, indirect, negative impacts to water resources due to the continuation of groundwater use
Vegetation	no impact	minor, long-term, direct, negative impacts to vegetation as a result of disturbance that would continue an on-going problem with non-native annual weeds
Wildlife	negligible, short-term, direct, negative impacts to wildlife as a result of	negligible, short-term, direct, negative impacts to wildlife as a result of loss of low value

	displacement of a few individual animals	habitat
Cultural Resources	no impact	minor, long-term, direct, positive impacts to historic resources by removing a non-historic structure from the historic scene and potential for direct impacts to undiscovered archaeological resources
Park Operations	major, long-term, direct negative impacts to park operations by removing three maintenance and law enforcement presence from the northeast portion of Mojave	major, long-term, direct, positive impacts to park operations by retaining the presence of maintenance and law enforcement personnel, improving utility systems, and improving employee retention and morale

### 3.3.7 Impairment

Neither Alternative A nor Alternative B will increase the footprint of disturbance at Kessler Springs Ranch. Under No Action, the site will continue to be occupied by one employee until the existing trailer has exhausted its useful life. At that time, a constant NPS presence will cease and security will diminish significantly. The historic resources will be at greater risk of vandalism or theft. The Park will continue to have insufficient housing for its field employees and, therefore, continued problems in recruiting and retaining employees. This may have an added consequence of compromised security and other park operations at both Kessler Springs and in other areas of Mojave. There is an increased risk of unsecured resources associated with No Action.

Under the Proposed Action, existing non-historic infrastructure will be replaced. The site design will be developed to avoid adverse impacts to the historic resources. The Magnitude of Action is small relative to the size of existing disturbance and negligible degree of new disturbance. The cultural resources of Kessler Spring Ranch have been inventoried and assessed for their historical value. A nomination is being prepared for Kessler Springs Ranch to be added to the National Historic Register. Mojave National Preserve has exhausted all available options for rental housing in the surrounding areas. Considering the level of knowledge available, the probability of a wrong decision is low. If a wrong decision is made, in a worst case scenario there would be more housing opportunities available than currently known. The consequences of the Proposed Action include a long-term commitment at Kessler Springs by the NPS to employee housing and to security and protection of the historic ranching resources. The Kessler Springs ranch site has been used by humans for over 100 years. It is on the boundary of the former Desert Wildlife Management Area and current desert tortoise critical habitat. The potential for impacts to desert tortoise critical habitat are, therefore, minimal. It is, therefore, deemed that the Proposed Action alternative will not result in impairment to the resources of Mojave National Preserve.

## 4. Consultation and Coordination

The Fish and Wildlife Service is being consulted under Section 7 of the Endangered Species Act (7 U.S.C. 136; 16 U.S.C. 460 et seq (1973)). The project area includes critical habitat for desert tortoise although none are known to occur in this location and

the habitat quality in the construction areas is compromised by the existing disturbance of the site and no take is anticipated.

The California State Historic Preservation Office is being consulted under Section 106 of the National Historic Preservation Act, as amended; 16 U.S.C. 470 et seq. (1966). Additionally the Chemehuevi Tribe is being consulted due to their long-standing relationship with the project site.

This environmental assessment will be made available for a 30-day public review in compliance with the National Environmental Policy Act; 42 U.S.C. 4321-4347 (1969). Following public review, comments received will be analyzed and a decision will be announced and implemented.

## **5. Distribution**

Elected Officials

Government Agencies

Public Libraries

## **6. Preparers**

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Robert Bryson, Archeologist, Mojave National Preserve

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